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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,064	09/17/2003	James P. Landers	119620-00101	3254
27557	7590	07/21/2005		
BLANK ROME LLP 600 NEW HAMPSHIRE AVENUE, N.W. WASHINGTON, DC 20037			EXAMINER JAGAN, MIRELLYS	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/664,064	Applicant(s) LANDERS ET AL. 	
	Examiner Mirellys Jagan	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 0200 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/23/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group III, claims 19-24, in the reply filed on 4/22/05 is acknowledged. The traversal is on the ground(s) that, because all of the groups relate in some manner to an optical interferometric temperature sensor, there is no substantial burden of an additional search in order to examiner all of Groups I-III. This is not found persuasive because:

Firstly, Groups I and II are related as combination and subcombination, where the combination as claimed does not require the particulars of the subcombination as claimed because the temperature sensor used in the combination can be a different temperature sensor than the temperature sensor of the subcombination, i.e., one that is not an optical interferometric sensor, and the subcombination has separate utility, such as an optical interferometric sensor for measuring distance. Furthermore, Group I is classified in class 435/287.2 whereas Group II is classified in class 356/451, and the search required for Group I is not required for Group II.

Secondly, Groups I and III are related as process and apparatus for its practice, and the apparatus as claimed can be used to practice another and materially different process, such as a process for measuring temperature without using an optical interferometric sensor or a calibration curve. Furthermore, Group I is classified in class 435/287.2 whereas Group III is classified in class 374/161, and the search required for Group I is not required for Group III.

Lastly, Groups II and III are related as process and apparatus for its practice, and the apparatus as claimed can be used to practice another and materially different process, such as a process for measuring distances instead of temperatures. Furthermore, Group II is classified in

Art Unit: 2859

class 356/451 whereas Group III is classified in class 374/161, and the search required for Group II is not required for Group III.

Therefore, because these inventions are distinct for the reasons given above, and the search required for one Group is not required for the other Groups, restriction for examination purposes as indicated is proper and is therefore made **FINAL**. Accordingly, claims 1-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### ***Drawings***

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections.***

4. Claims 19-24 are objected to because of the following informalities:

In claims 19 and 21, there is lack of antecedent basis in the specification for using a “calibration curve”. The specification states that the output of the optical interferometric sensor can be converted to a temperature with a ‘standard curve’, but does not disclose the curve being obtained by interrogating samples with known temperatures using the optical interferometric sensor, as claimed in claim 21. Claims 20 and 22-24 are objected to for being dependent on objected base claim 19. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,210,882 to Landers et al [hereinafter Landers] in view of U.S. Patent 5,381,229 to Murphy et al [hereinafter Murphy].

Art Unit: 2859

Landers discloses a method for measuring the temperature of a small volume solution, the method comprising the steps of:

providing an optical temperature sensor (178);

providing a small volume of a sample (172); interrogating the small volume with the sensor to obtain an output; and

converting the output of the sensor to temperature;

wherein the sample is contained in a microchip, capillary tube, microchamber, or microtiter plate; the converting step is performed by a microprocessor; and the volume is about 100 pL to about 100 microliters (nanoliter range) (see figures 6C, 6D; column 8, lines 48-63; column 13, line 52-column 14, line 2; column 14, lines 60-64; column 15, lines 38-52; and column 16, line 59-column 17, line 30).

Landers does not disclose the optical temperature sensor being an optical interferometric sensor using a calibration curve obtained by interrogating samples at known temperatures using the sensor to convert the signal from the sensor to a temperature signal, the sensor being an extrinsic Fabry-Perot interferometer.

Murphy discloses an optical interferometric sensor as an optical temperature sensor for obtaining temperature measurements. The sensor is an extrinsic optical interferometric sensor (Fabry-Perot type, as described by applicant in figure 1 of the specification) using a microprocessor to determine temperature, the microprocessor using a calibration curve (look-up table) when converting the signal from the interferometer to a temperature measurement. The calibration curve correlates the sensor output to a corresponding temperature measurement. The sensor is useful for obtaining non-contact temperature measurements and is useful in a wide

Art Unit: 2859

temperature range, e.g., up to 2000°C (see figure 3; column 5, line 35-column 6, line 9; and column 6, lines 31-50).

Referring to claim 19, it would have been obvious to a person having ordinary skill in the art at the time that the invention was made to modify the method disclosed by Landers by replacing the optical temperature sensor with an extrinsic optical interferometric sensor using a microprocessor to obtain the temperature, as disclosed by Murphy, since Murphy teaches that an extrinsic optical interferometric sensor is a useful sensor for measuring temperatures remotely and is useful in a wide temperature range.

Referring to claim 21, the calibration curve of Landers and Murphy is predetermined and stored in a microprocessor memory, the curve correlating the output of the sensor with a corresponding temperature measurement. Therefore, the calibration curve is obtained by interrogating samples at known temperatures using the sensor, as claimed (the temperatures of the samples must be known in order to correlate them to the corresponding sensor output in order to create the predetermined curves).

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents and publication disclose an optical temperature sensor:

U.S. Patent 4,830,513 to Grego

U.S. Patent 5,473,428 to Lee et al

U.S. Patent 4,179,927 to Saaski

U.S. Patent 6,056,436 to Sirkis et al

Art Unit: 2859

U.S. Patent 5,876,121 to Burns et al

U.S. Patent 5,276,501 to McClintock et al


U.S. Patent Application Publication 2003/0118078 to Carlson et al

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
July 19, 2005

  
**Mirellys Jagan**  
**Patent Examiner**  
**Technology Center 2800**